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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/298,751	04/23/1999	SENG-KHOON TNG	ICEN-P001	2402

7590                    03/13/2003

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[REDACTED] ART UNIT      [REDACTED] PAPER NUMBER

2662

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/298,751	TNG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David Odland	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 February 2003.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>13</u> . | 6) <input type="checkbox"/> Other: _____ .                                   |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The following is a response to the RCE filed on 2/23/2003.

### ***Claim Objections***

2. Claims 3,5 and 12 are objected to because of the following informalities:

Claim 3 recites "...the at least one barrel shift register..." in line 3 and claims 5 and 12 recite "...the barrel shift register..." It appears as though these statements should be pluralized. Since the parents of these claims have been amended to recite 'a pair of barrel shift registers' the corresponding amendments should be made to the child claims to properly reflect this amendment. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1,7,9 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen (USPN 6,308,189), hereafter referred to as Nguyen.

Referring to claim 1, Nguyen discloses an electronic switching apparatus (a vector word shift mechanism (see figure 3A)) comprising:

a circuit for receiving at least one input signal from at least one input endpoint (barrel shifters which receives input signals (see items 305 and 306 in figure 3A)), the first circuit having at least one pair of barrel shift registers coupled to at least one of the at least one input endpoint for receiving the at least one input signal (two barrel shifters receive input signals and are inherently coupled to an input endpoint (see items 301 and 302 in figure 3A)), shifting and rotating the at least one input signal (the input signals are shifted and rotated (see figure 3A and column 3 lines 62-67 and column 4 lines 1-4)); and

a second circuit coupled to outputs from the first circuit for sending at least one received signal to at least one output endpoint (secondary circuits receive the data output from the barrel shifters and output the data to an output endpoint, which inherently exists (see figure 3A)).

Referring to claims 7 and 14, Nguyen discloses of a method for electronic signal coupling (a vector word shift mechanism (see figure 3A)), the method comprising the steps of:

receiving a first set of digital signals (a pair of barrel shifters which receive digital input signals (see items 305 and 306 in figure 3A)), the received first set of digital signals being provided to at least one pair of barrel shift registers (the received signals go through a pair of barrel shifters (see items 305 and 306 in figure 3A));

shifting and rotating the first set of digital signals (the input signals are shifted and rotated (see figure 3A and column 3 lines 62-67 and column 4 lines 1-4)); and

transmitting a second set of digital signals (transmitting another set of signals (see items 360 and 361 in figure 3A)), the transmitted second set of digital signals being provided from a plurality of multiplexers (the second set of signals is from plurality of multiplexers (see items 337 and 338 in figure 3A)), the plurality of multiplexers being selectively coupled to the barrel

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shift registers such that at least one signal selected in the first set of digital signals is selectively coupled for transmission in the second set of digital signals (signals coming into barrel shifter 301 can be selected to be input into multiplexer 338 and output as a part of the second signal set (see figure 3A)).

Referring to claim 9, Nguyen discloses the method as discussed above. Furthermore, Nguyen discloses that the first set of digital signals are transmitted as digital signals in the second set of digital signals separately at different times (the input signals to the barrel registers are multiplexed out as another set of signals on different output lines and at a time later than the signals where received (see figure 3A)).

Referring to claim 11, Nguyen discloses the method as discussed above. Furthermore, Nguyen discloses that the step of transmitting further comprises transmitting the at least one output signal to at least one multiplexer at different times (signals coming into barrel shifter 301 are output to multiplexer 338 and as a part of the second signal set at a later time than the signal was input (see figure 3A)).

Referring to claim 12, Nguyen discloses the apparatus as discussed above. Furthermore, Nguyen discloses that the barrel shift register is a loadable barrel shift register (the barrel shifters are loadable with data bits (see figure 3A)).

Referring to claim 13, Nguyen discloses the apparatus as discussed above. Furthermore, Nguyen discloses that the apparatus further comprises a plurality of multiplexer modules (the apparatus comprises a plurality of multiplexers (see items 345 and 346 of figure 3A)).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2,3,5,6 and 10, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen.

Referring to claim 2, Nguyen discloses the system disclosed above. Nguyen does not disclose that the input signal is received in serial form including a plurality of data channels interleaved between them. However, it is well known in the art to transmit and receive and transmit signals that comprise a plurality of interleaved channels in serial form (for example time division multiplexing). It would have been obvious to one skilled in the art at the time of the invention to receive the data in a signal of serial form wherein a plurality of data channels are interleaved therein, in the apparatus taught by Nguyen, because such a data format is commonly used in order to allow the transmit and receive lines to be shared, thereby increasing the efficiency of Nguyen.

Referring to claim 3, Nguyen discloses the system discussed above. Furthermore, Nguyen discloses that the second circuit comprises at least one multiplexer selectively coupled to the at least one barrel shift register (a multiplexer is coupled to a barrel shifter (see figure 3A)) thereby effectively enabling digital signal switching between the at least one input endpoint and the at least one output endpoint (thereby the input signal from an input endpoint is switched to the output signal which is sent to an output endpoint (see figure 3A)). Nguyen does not disclose that the signals are switched simultaneously. However, it would have been obvious to one skilled in

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the art at the time of the invention to provide simultaneous switching in the system of Nguyen because doing so would make the system operate faster.

Referring to claim 5, Nguyen discloses the switching apparatus as discussed above. Furthermore, Nguyen discloses that the barrel shift register interconnects a plurality of received input signals at different times (the barrel shifters interconnect input signals (see figure 3A)).

Referring to claims 6 and 10, Nguyen discloses the switching apparatus as discussed above. Nguyen does not explicitly disclose that the endpoint is one of the AC97 or 12S conventions. However, it is well known in the art that AC97 and 12S are widely used well-established standards for data coding. Therefore, it would have been obvious to one skilled in the art at the time of the invention to utilize the system of Nguyen in conjunction with the AC97 or 12S conventions because of their well established and widely used standards and so using these already established standards will reduce the cost of having to develop a new coding format.

7. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of Phelps et al. (USPN 4,512,018), hereafter referred to as Phelps.

Referring to claims 4 and 8, Nguyen discloses that the first set of digital signals comprises a data signal, which is received in either serial or parallel form (the barrel shifter receives the data in parallel form (see item 301 and 302 of figure 3)). Nguyen does not disclose that the data signal is converted to serial form when received in parallel form. However, Phelps discloses of a barrel shifter circuit, which receive signals from its parallel inputs (i.e. items A0-A3 of item 40 in figure 2), shifts them, and outputs them in serial form (i.e. output X0 of item

45). It would have been obvious to one skilled in the art at the time of the invention to use the parallel to serial conversion method as taught by Phelps in the method of Nguyen because doing so would allow the system of Nguyen to be more flexible in the types of data it receives (namely, the system of Nguyen will be able to receive parallel or serial data).

***Response to Arguments***

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Odland, who can be reached at (703) 305-3231 on Monday – Friday during the hours of 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached at (703) 305-4744. The fax number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, who can be reached at (703) 305-4750.

deo

March 7, 2003

